UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,691	01/16/2002	Samson Mil'shtein	2328.2004-001	5125

21005	7590	11/03/2004

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 VIRGINIA ROAD
P.O. BOX 9133
CONCORD, MA 01742-9133

EXAMINER
CHAWAN, SHEELA C

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/050,691	MIL'SHTEIN ET AL.
	Examiner	Art Unit	
	Sheela C Chawan	2625	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 January 2002_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _1-10_ is/are allowed.

6)☒ Claim(s) _11 and 15-20_ is/are rejected.

7)☒ Claim(s) _12-14_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _4/26/02_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to because of draftsperson's remarks (see attached

PTO- 948 10/28/04. A proposed drawing correction or corrected drawings are required

in reply to the Office action to avoid abandonment of the application. The objection to

the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under

37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior

art under 35 U.S.C. 103(a).

Claims 11,15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bortolussi et al., (US. 6,292,575 B1), in view of Ross (US.6,195,447 B1).

As to claim 11, Bortolussi discloses a real-time facial recognition and verification

system of authenticating (column 1, lines 6-10, column 4, lines 15- 23, column 12, lines

32- 48) an acquired image of an object (note, acquiring image of face, column 12, lines

32- 48) comprising the steps of:

compressing (fig 1, element 36, PCA corresponds to compression which is

projecting the image data on area axis, column 4, lines 30- 44) the acquired image into

an acquired image projection (note, acquiring images by compressing and projecting

the image data on to a multi-dimensional image space thereby generating a set of

reference image feature, column 4, lines 38- 44, column 11, lines 37- 44, column 12,

lines 32-67);

performing a symmetry process between the acquired image projection

and a reference projection of a predetermined reference image to determine a

deviation of symmetry (note, a symmetry corresponds to degree of closeness between

the two images, the set of reference images are projected in the multi-dimensional

image space, which represents the person's feature and determining weather the

acquired image matches a per-stored image, column 3, lines 15- 23, column 4, lines 27-

44, column 12, lines 20- 63, column 13, lines 21- 67, column 14, lines 1-7, 45- 54,

column 21, line 64 through column 22, line 1- 4, column 22, lines 50- 67); and

Bortolussi is silent about authenticating the acquired image by comparing the

deviation of symmetry and a predetermined threshold value to.

Ross discloses a system and method for authenticating fingerprint and data

verification. The system comprises of:

authenticating (fig 3, element 30) the acquired image (fig 3, 32 is a scanner for

generating real time image data of an applied fingerprint column 3, lines 32- 35) by

comparing (fig 3, 46) the deviation of symmetry and a predetermined threshold value

(note, threshold corresponds to the minimal level of deviation may be established

similar to the maximum statistical boundaries, see column 4, lines 56- 59, column 5,

lines 28- 55).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Bortolussi to include authenticating the acquired image

by comparing the deviation of symmetry and a predetermined threshold value. It would

have been obvious to one of ordinary skill in the art at the time of the invention to modify

Bortolussi by the teaching of Ross in order to provide an economical and highly reliable

way of detecting digital fingerprint forgeries. This feature raises the level of reliability for

the security system to ensure against active breaches in the transmission lines

connecting the remote and local sites (as suggested by Ross at column 6, lines 1-11).

As to claim 15, Ross discloses the method further comprising acquiring the

acquired image (fig 3, 32 corresponds to fingerprint detector or scanner for generating

real time image data of an applied fingerprint, column 3, lines 32- 34) to be

authenticated (fig 3, 20 corresponds to authenticated system, column 3, lines 22- 31).

As to claim 16, Ross discloses the method further comprising storing the predetermined reference image (fingerprint template corresponds to reference image, column 4, lines 56 - 59).

As to claim 17, Bortolussi discloses the method wherein the object includes a retina scans (fig 1, 22 image acquisition device includes video camera 40, which captures image of a person's face or other facial feature, such as nose, eyes and lips, column 19, lines 27- 38) and, signatures and faces (column 2, lines 61- 63, column 4, lines 25- 49, column 19, lines 27- 38).

Bortolussi is silent about fingerprints hand or palmprints.
Ross discloses a system and method for fingerprint data verification (fig 3, scanner or fingerprint detector 32 scans image of fingerprint, column 3, lines 32- 34, column 4, lines 29- 33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bortolussi to include fingerprint. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bortolussi by the teaching of Ross in order to provide an economical and highly reliable way of detecting digital fingerprint forgeries, and also this feature raises the level of reliability for the security system (as suggested by Ross at column 6, lines 1-11).

As to claim 18, Bortolussi discloses the method wherein the acquired image projection includes image data sensitive at about a correlation (column 16, lines 20- 38).

As to claim 19, Bortolussi discloses a method of image correlation (column 17, lines 38- 48) comprising the steps of:

compressing(fig 6, 36) a first image of a first object into a first projection (fig 6,

122 corresponds to first image, column 17, lines 38- 48, column 19, lines 27- 61);

compressing a second image of a second object into a second projection (fig 6,

164 corresponds to second image , column 21, lines 32- 67, column 22, lines 1-12);

comparing the symmetry between the first and second projections to

determine a deviation of symmetry (column 12, lines 20- 67, column 13, lines 21- 67,

column 14, lines 1- 7); and

Bortolussi discloses real-time facial recognition and verification system.

Bortolussi is silent about comparing the deviation of symmetry and a

predetermined threshold value to determine whether the first image and the second

image are the images of a same object.

Ross discloses a system and method for authenticating fingerprint and data

verification. The system comprises of:

comparing (fig 3, 46) the deviation of symmetry and a predetermined threshold

value to determine whether the first image (fig 4, 50, corresponds to first image ,

column 4, lines 31- 33) and the second image are the images (fig 3, 44 corresponds to

second image which is stored in the fingerprint database memory , column 4, lines 20-

28) of a same object (note, threshold corresponds to the minimal level of deviation may

be established similar to the maximum statistical boundaries, see fig 4, step 68 states

that if the two feature vectors match exactly, or with deviation less than the statistical

minimum criteria , the real time feature vector is considered a digital image copy and an

access is granted , column 4, lines 56- 59, column 5, lines 28- 55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bortolussi to include comparing the deviation of symmetry and a predetermined threshold value to determine whether the first image and the second image are the images of a same object. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bortolussi by the teaching of Ross in order to provide an economical and highly reliable way of detecting digital fingerprint forgeries. This feature raises the level of reliability for the security system to ensure against active breaches in the transmission lines connecting the remote and local sites (as suggested by Ross at column 6, lines 1-11).

As to claim 20, see the rejection of claim 19 above.

Reason For Allowance

3.   The following is an examiner's statement of reasons for allowance:

Claims 1-10 are allowed.

For Independent claim 1, the prior art on record, fails to teach or fairly suggest, singly or in combination, a method of (i) comparing a first image and a second image comprising, among other things, (ii) performing a correlation function at a first point near the correlation peak $\Delta + \hat{o}$ to determine a first correlation result; (iii) performing the correlation function at a second point near the correlation peak $\Delta - \hat{o}$ to determine a second correlation result; (iv) performing the correlation function at the correlation peak to determine a peak correlation result; (v) computing a difference between the first correlation result and the second correlation result; (vi) dividing the difference by the

peak correlation result to determine the deviation of symmetry; and (d) comparing the

deviation of symmetry and a predetermined threshold value.

Allowable Subject Matter

4.   Claims 12 -14 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

Other prior art cited

5.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Aragaki (US.5,187,755) discloses method of and apparatus for compressing

image data .

Brady (US. 5,892,838) discloses biometric recognition using a classification

neural network.

Gotsman et al., (US.6,501,857 B1) discloses method and system for detecting

and classifying objects in an image.

Dydyk et al., (US.6,226,391B1) discloses fingerprint classification VIA spatial

frequency components.

Eichhorn et al., (US.6,795,570 B1) discloses process and apparatus for the

electronic recording of an image.

Contact Information

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Sheela C Chawan whose telephone number is 703-

305- 4876. The examiner can normally be reached on Monday - Thursday 8 - 6.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2625
October 30, 2004